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PATENT ABSTRACTS OF JAPAN

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(54) LASER AND BEAM EXPANDER

(57)Abstract:

PURPOSE: To obtain a laser having a small size and a small beam divergence by disposing a convex cylindrical lens for condensing a laser light only in a lateral direction of a solid slab (YAG slab) in an optical path of a resonator.

CONSTITUTION: A YAG slab laser passes a laser light in a zigzag manner in a YAG slab 1 having opposed optically polished surfaces while repeating a total reflection on the polished surfaces, and comprises a convex cylindrical lens 3 (or an optical element having a function equivalent to that of the lens) so disposed to condense the light only in a lateral direction of the slab 1 that a conical reflecting surface having an apical angle of 90° becomes parallel to a focal line of the lens 3 at a central axis thereof. A light irradiated from the slab 1 to an output side is condensed by the lens 3, collimated to a parallel beam by a concave axial cone 9, and output from an output mirror 9. Thus, a slab solid state laser having a small size and a small beam divergence is obtained.

